**1] Write an java program to create an abstract class abstract 3d shape with abstract method calculate volume(), calculate surface area() create sub class sphere and cube that extends the shape 3d class and implement the respective method to calculate the volume and surface area of each shape.**

package p1;

abstract class ThreeDShape {

abstract double calculateVolume();

abstract double calculateSurfaceArea();

}

class Sphere extends ThreeDShape {

private double radius;

public Sphere(double radius) {

this.radius = radius;

}

double calculateVolume() {

return (4/3) \* Math.***PI*** \* Math.*pow*(radius, 3);

}

double calculateSurfaceArea() {

return 4 \* Math.***PI*** \* Math.*pow*(radius, 2);

}

}

class Cube extends ThreeDShape {

private double side;

public Cube(double side) {

this.side = side;

}

double calculateVolume() {

return Math.*pow*(side, 3);

}

double calculateSurfaceArea() {

return 6 \* Math.*pow*(side, 2);

}

}

public class abstractclass {

public static void main(String[] args) {

Sphere sphere = new Sphere(5);

Cube cube = new Cube(4);

System.***out***.println("Sphere:");

System.***out***.println("Volume: " + sphere.calculateVolume());

System.***out***.println("Surface Area: " + sphere.calculateSurfaceArea());

System.***out***.println("\nCube:");

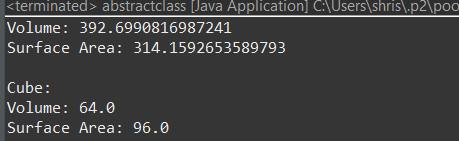
System.***out***.println("Volume: " + cube.calculateVolume());

System.***out***.println("Surface Area: " + cube.calculateSurfaceArea());

}

}

**Output:**

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